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United States Patent [19]**Nishi**[11] **Patent Number:** **5,477,304**[45] **Date of Patent:** **Dec. 19, 1995**[54] **PROJECTION EXPOSURE APPARATUS**[75] **Inventor:** Kenji Nishi, Kawasaki, Japan[73] **Assignee:** Nikon Corporation, Tokyo, Japan[21] **Appl. No.:** 377,504[22] **Filed:** Jan. 25, 1995**Related U.S. Application Data**

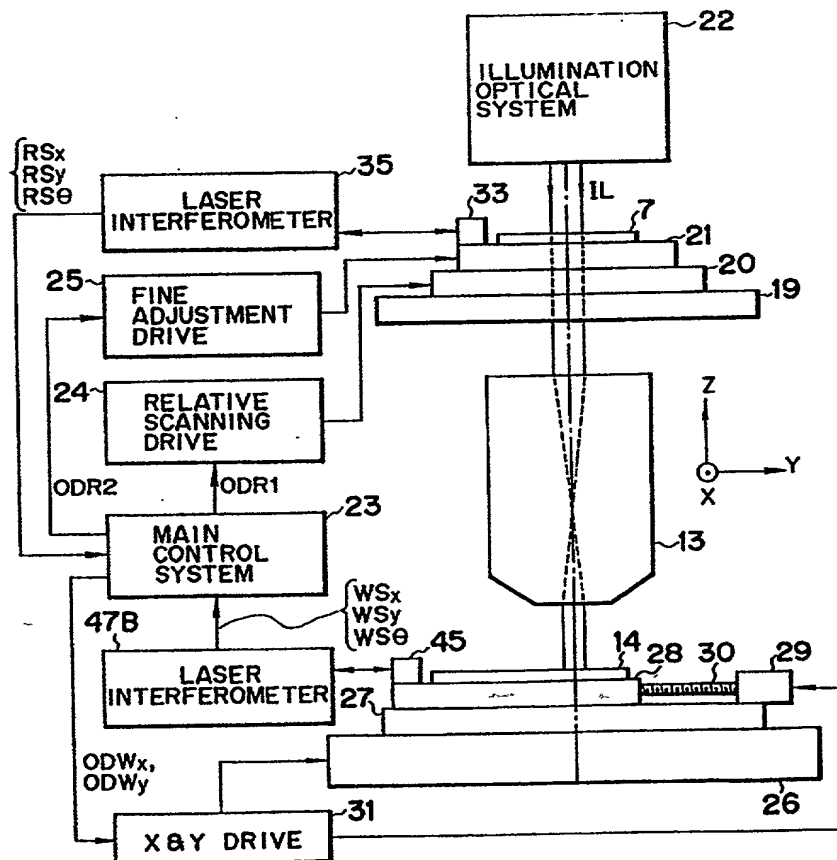
[63] Continuation of Ser. No. 139,803, Oct. 22, 1993, abandoned.

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G03B 27/50[52] **U.S. Cl.** 355/53; 355/50[58] **Field of Search** 355/50, 51, 53,
355/55**References Cited****U.S. PATENT DOCUMENTS**

3,538,828 11/1970 Genovese 95/18

34 Claims, 13 Drawing Sheets*Primary Examiner*—Richard A. Wintercom
Attorney, Agent, or Firm—Shapiro and Shapiro**[57] ABSTRACT**

Constant speed drive of a reticle and a wafer in a relative scanning direction and positioning of the reticle and the wafer are simultaneously performed with high precision by a slit scanning exposure scheme. A reticle side scanning stage for scanning a reticle relative to a slit-like illumination area in the relative scanning direction is placed on a reticle side base. A reticle side fine adjustment stage for moving and rotating the reticle within a two-dimensional plane is placed on the reticle side scanning stage. The reticle is placed on the reticle side fine adjustment stage. Constant speed drive and positioning of the reticle and a wafer are performed by independently controlling the reticle side scanning stage and the reticle side fine adjustment stage.



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